

## **CASE NARRATIVE**

### **Monthly Data Gelman Sciences**

### **Project: 1,4-Dioxane Remediation**

**Date: September 2022**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition, all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Gelman Sciences Inc. attests to the validity of the laboratory data generated by Gelman Sciences Ann Arbor, Michigan Environmental Laboratory facilities reported herein. All analyses performed by Gelman Science's Environmental Laboratory facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Gelman Science's Environmental group has reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

At the end of the month some of the 1,4-dioxane samples were sent to Ann Arbor Technical Services for analysis due to a reproducibility problem. The balance of the samples was analyzed for 1,4-dioxane at Gelman Science's Environmental Laboratory. All bromate samples were analyzed by Gelman Science's Environmental Laboratory. The test results in this report meet all NELAP requirements for parameters for which accreditation are required or available. Any exceptions to NELAP requirements are noted in this report. All exceptions are noted per laboratory standard operating procedure based on EPA Method 1624c. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results. The odd even rule is used for rounding. Holding times were met for all samples analyzed. Proper preservation was observed on all samples unless otherwise detailed in the individual sections below. Samples MW-54d, 72d, and 71 were recollected due to questionable results.

## **RECEIPT/ STORAGE**

The samples were received on the days noted in the report for the Month; the samples arrived in good condition, properly preserved and on ice when necessary. Samples that require 1,4-dioxane analysis are collected in hydrochloric HCl acid-preserved vials to a pH of  $\leq 2$ , except for the Pall ozone treatment samples. These samples have chemicals that, when mixed with the HCl acid, cause interferences and trap damage. Every attempt is made to analyze these samples within 24 hours of receipt.

Samples that require Bromate analysis are collected and preserved in the laboratory with ethylene di-amine and refrigerated.

Samples that are delivered to the laboratory the same day as they are collected are likely not to have reached a fully chilled temperature. This is acceptable as long as there is evidence that chilling has begun. All samples are iced or refrigerated at 4°C ( $\pm 2^\circ\text{C}$ ) from the time of collection until sample preparation or analysis.

### **1,4-Dioxane (GC-MS)**

All ground water and treated water samples were analyzed for 1,4-Dioxane (GC-MS) in accordance with EPA 1624C, which has been modified to enhance detection limits. Samples that were diluted to bring them within the calibrated range of the instrument are noted with a "D" under the Qualifier Code section of the data report. Reporting limits were adjusted based on each dilution.

Reporting limit for undiluted samples is 1ppb (part per billion, micrograms per liter, µg/L). All quality control parameters were within the acceptance limits for reported samples unless indicated.

## **Bromate (Ion Chromatography)**

All surface water and treated samples were analyzed for Bromate (Ion Chromatography) in accordance with EPA 300.1. Surrogates are added to all samples. All quality control parameters were within the acceptance limits with the balance of sample analyzed.

The reporting limit for treated samples is 5.0ppb and for surface samples is 2.0ppb.

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## **Qualifiers**

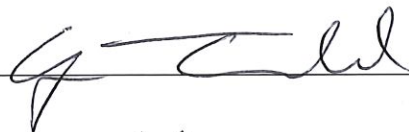
### **1,4-Dioxane Qualifier Codes:**

<i>Qualifier Code</i>	<i>Description</i>
nd:	The compound was analyzed for, but not detected at or above the detection limit indicated.
D:	Analyte value quantified from a dilution; reporting limit is raised to reflect dilution.
E:	The compound result is greater than the upper quantitation limit in the associated calibration curve, reported as estimate.
B:	The sample vials contained air bubbles larger than 5mm, which may affect compound results.
J:	The compound was positively identified; the associated numerical value is the approximate concentration.
M:	Matrix effects, sample required dilution.
R:	The reported value is unusable and rejected due to variance from quality control criteria.
V:	The reported value is considered estimated due to variance from quality control criteria.
H:	Sample was analyzed past 14-day hold time, but within 45 days.
O:	Samples analyzed in outside laboratory.
S:	Samples split with DEQ.

### **Bromate Qualifier Codes:**

<i>Qualifier Code</i>	<i>Description</i>
nd:	The compound was analyzed but was not detected at or above the detection limit indicated.
E:	The compound result is greater than the upper quantitation limit in the associated calibration curve.
J:	The compound was positively identified; the associated numerical value is the approximate concentration.
R:	The reported value is unusable and rejected due to variance from quality control criteria.
V:	The reported value is considered estimated due to variance from quality control criteria.
H:	Sample was analyzed past 28-day hold time

Analyst: Gage M. Trendel



Date:

10/10/22

Report Checked by: Scott Davis



Date:

10/10/22



# Sample Analysis Report

642 South Wagner Road  
Ann Arbor, MI 48103-9019 US  
734.436.4025 phone

September, 2022

Analyst Initials: GMR  
Date: 10/10/22

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
<b>Miscellaneous Wells</b>								
<b>D0</b>								
ARTESIAN #3-09-23-22-09:55-1	8.4	1.0						
<b>Residential Wells</b>								
<b>Not Determined</b>								
697 South Wagner Rd-09-23-22-09:22-1	nd	1.0						O
723 S. Wagner Road-09-23-22-09:14-1	1	1.0						O
745 S. Wagner Road-09-23-22-09:08-1	nd	1.0						O
777 S. Wagner Road-09-23-22-09:00-1	nd	1.0						O
<b>Extraction Wells</b>								
<b>C3</b>								
DOLPH-09-09-22-11:25-1	120	10						D
TW-20-09-09-22-11:50-1	680	10						D
TW-24-09-09-22-11:15-1	2000	100						D
TW-25-09-09-22-12:20-1	2100	100						D
<b>D2</b>								
LB-4-09-09-22-10:35-1	430	10						D
TW-21-09-09-22-11:00-1	220	10						D
TW-5-09-09-22-11:40-1	620	10						D
TW-9-09-09-22-11:35-1	400	10						D



Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
<b>E</b>								
TW-17-09-09-22-11:30-1	58	10						D
TW-18-09-09-22-11:05-1	220	10						D
TW-23-09-09-22-10:40-1	360	10						D
TW-29-09-09-22-10:45-1	360	10						D
<b>Marshy</b>								
PW-1-09-09-22-11:20-1	850	10						D
<b>SW</b>								
TW-22-09-09-22-12:30-1	430	10						D
TW-28-09-09-22-12:10-1	590	10						D
<b>Monitoring Wells</b>								
<b>C3</b>								
MW-125-09-16-22-13:37-1	200	10						D
MW-127s-09-16-22-15:08-1	nd	1.0						
MW-128s-09-16-22-10:21-1	1.5	1.0						
MW-22-09-15-22-13:30-1	1100	10						D
MW-23-09-23-22-10:40-1	170	10						D
MW-24-09-23-22-11:50-1	500	10						D
MW-28-09-28-22-13:00-1	nd	1.0						
MW-37-09-15-22-11:33-1	280	10						D
<b>D0</b>								
110 Parkland Plaza-09-09-22-13:22-1	nd	1.0						
4141 Jackson Rd-09-07-22-16:03-1	1.2	1.0						
4401 Park West-09-07-22-12:59-1	3.6	1.0						
4742 Park Rd-09-07-22-11:27-1	4.0	1.0						
MW-145s-09-21-22-11:40-1	nd	1.0						



Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
MW-31-09-19-22-14:48-1	nd	1.0						
MW-51-09-08-22-12:30-1	nd	1.0						
MW-53d-09-02-22-14:54-1	nd	1.0						
MW-53i-09-02-22-13:39-1	21	1.0						
MW-53s-09-02-22-12:29-1	nd	1.0						
MW-60-09-07-22-14:29-1	2.6	1.0						

## D2

170 April-09-12-22-10:11-1	nd	1.0						D
MW-131s-09-08-22-15:17-1	nd	1.0						
MW-56s-09-09-22-16:28-1	47	1.0						

## E

373 Pinewood Deep-09-21-22-09:38-1	nd	1.0						
MW-100-09-20-22-13:42-1	2200	100						D
MW-103s-09-13-22-09:23-1	92	10						D
MW-112i-09-22-22-11:40-1	9.3	1.0						
MW-112s-09-22-22-10:29-1	3.2	1.0						
MW-127d-09-16-22-16:20-1	nd	1.0						
MW-128d-09-16-22-09:11-1	nd	1.0						
MW-131d-09-08-22-16:28-1	nd	1.0						
MW-135-09-20-22-11:38-1	nd	1.0						
MW-145d-09-21-22-14:05-1	nd	1.0						
MW-145i-09-21-22-12:51-1	nd	1.0						
MW-56d-09-09-22-15:10-1	nd	1.0						
MW-76i-09-22-22-14:37-1	110	10						D
MW-76s-09-22-22-13:20-1	340	10						D
MW-84s-09-13-22-11:08-1	350	10						D
MW-98s-09-19-22-10:13-1	8.1	1.0						

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
<b>Marshy</b>								
AMW-1-09-23-22-11:00-1	210	10						D
AMW-2-09-23-22-10:20-1	130	10						D
MOW-1-09-23-22-10:50-1	400	100						D
NMW-1d-09-23-22-11:30-1	690	10						D
NMW-1s-09-23-22-11:40-1	1600	100						D
NMW-2d-09-23-22-12:10-1	880	100						D
NMW-2s-09-23-22-12:20-1	1700	100						D
NMW-3d-09-23-22-11:20-1	410	10						D
NMW-3s-09-23-22-11:10-1	180	1.0						
PMW-1-09-23-22-12:00-1	110	10						D
PMW-2-09-23-22-12:40-1	2500	100						D
PMW-3-09-23-22-12:50-1	5400	100						D
PMW-4-09-23-22-12:30-1	1300	10						D
<b>SW</b>								
MW-57-09-19-22-12:35-1	8.0	1.0						
<b>Surface Water</b>								
<b>Not Applicable</b>								
HC/HR-09-02-22-15:10-1			nd	2.0				
HC/HR-09-06-22-10:10-1			nd	2.0				
HC/HR-09-07-22-11:50-1			nd	2.0				
HC/HR-09-08-22-10:50-1			nd	2.0				
HC/HR-09-09-22-10:05-1			nd	2.0				
HC/HR-09-12-22-09:30-1			nd	2.0				
HC/HR-09-13-22-10:20-1			nd	2.0				
HC/HR-09-14-22-10:25-1			nd	2.0				

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
HC/HR-09-15-22-08:40-1			nd	2.0				
HC/HR-09-16-22-10:00-1			nd	2.0				
HC/HR-09-19-22-09:15-1			nd	2.0				
HC/HR-09-20-22-10:40-1			nd	2.0				
HC/HR-09-21-22-10:10-1			nd	2.0				
HC/HR-09-22-22-16:00-1			nd	2.0				
HC/HR-09-23-22-09:40-1			nd	2.0				
HC/HR-09-26-22-10:15-1			nd	2.0				
HC/HR-09-27-22-11:00-1			nd	2.0				
HC/HR-09-28-22-09:40-1			nd	2.0				
HC/HR-09-29-22-09:20-1			nd	2.0				
HC/HR-09-30-22-09:20-1			nd	2.0				

## Treatment System

OUTFALL-09-02-22-2			7.4	5.0				
OUTFALL-09-02-22-1	5.4	1.0						
OUTFALL-09-04-22-2			7.0	5.0				
OUTFALL-09-04-22-1	4.6	1.0						
OUTFALL-09-05-22-1	5.5	1.0						
OUTFALL-09-05-22-			12	5.0				
OUTFALL-09-06-22-2			12	5.0				
OUTFALL-09-06-22-1	4.4	1.0						
OUTFALL-09-07-22-2			9.8	5.0				
OUTFALL-09-07-22-1	4.5	1.0						
OUTFALL-09-08-22-2			10	5.0				
OUTFALL-09-08-22-1	4.7	1.0						
OUTFALL-09-11-22-1	5.0	1.0						
OUTFALL-09-11-22-2			10	5.0				



Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
OUTFALL-09-12-22-2			9.5	5.0				
OUTFALL-09-12-22-1	5.0	1.0						
OUTFALL-09-13-22-1	4.9	1.0						
OUTFALL-09-13-22-2			7.8	5.0				
OUTFALL-09-14-22-2			9.5	5.0				
OUTFALL-09-14-22-1	5.2	1.0						
OUTFALL-09-15-22-2			8.4	5.0				
OUTFALL-09-15-22-1	5.4	1.0						
OUTFALL-09-18-22-1	5.6	1.0						
OUTFALL-09-18-22-2			8.4	5.0				
OUTFALL-09-19-22-1	5.5	1.0						
OUTFALL-09-19-22-2			9.7	5.0				
OUTFALL-09-20-22-2			10	5.0				
OUTFALL-09-20-22-1	5.6	1.0						
OUTFALL-09-21-22-2			10	5.0				
OUTFALL-09-21-22-1	5.5	1.0						
OUTFALL-09-22-22-1	5.6	1.0						
OUTFALL-09-22-22-2			8.6	5.0				
OUTFALL-09-25-22-2			11	5.0				
OUTFALL-09-25-22-1	5.4	1.0						
OUTFALL-09-26-22-2			12	5.0				
OUTFALL-09-26-22-1	4.9	1.0						
OUTFALL-09-27-22-1	6.3	1.0						
OUTFALL-09-27-22-2			8.5	5.0				
OUTFALL-09-28-22-1	6.9	1.0						
OUTFALL-09-28-22-2			8.5	5.0				
OUTFALL-09-29-22-2			10	5.0				

Sample Name - Date/Time Sampled	1,4-Dioxane Results (ppb)	R.L. (ppb)	Bromate Results (ppb)	R.L. (ppb)	Bromide Results (ppb)	R.L. (ppb)	Comments	Qualifier(s)
OUTFALL-09-29-22-1	7.2	1.0						
Red Pond-09-06-22-08:00-1	390	10						D
Red Pond-09-12-22-08:00-1	380	10						D
Red Pond-09-19-22-07:30-1	360	10						D
Red Pond-09-21-22-09:40-1	390	10						D
Red Pond-09-26-22-07:30-1	380	10						D
Red Pond-09-27-22-08:16-1	390	10						D
Red Pond-09-30-22-07:50-1	440	10						D



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Michigan Laboratory ID: 9604  
Wisconsin Laboratory ID: 998321720

## Data Transmittal Cover Page

**Project Name:** Pall Corporation  
**ATS Project Number:** G001-002  
**ATS Report Number(s):** Org\_SRF\_0926221  
**Client PO Number:** 4505179649

**Project Description:** This data report contains the results of four samples, received by ATS on September 26, 2022 to be analyzed for 1,4 Dioxane.

We certify that the sample analyses for this report have been conducted in accordance with guidelines provided in the referenced standard test method, and are consistent with detailed procedures described in a written Standard Operating Procedure specific to the ATS Laboratories, as required by USEPA. Laboratory data sheets, SOPs, and QA/QC information are available for inspection and audit at the laboratory upon request. Unless specifically noted on the data report, all applicable sample preservation and holding time requirements have been met.

**Recipient:** Mr. Gage Trendel **Email:** [gage\\_trendel@pall.com](mailto:gage_trendel@pall.com)  
**FAX Number:** \_\_\_\_\_

**No. of Pages (including cover pg.):** 16

**From:** Sarah Stubblefield **Email:** [Sarah.Stubblefield@AnnArborTechnicalServices.com](mailto:Sarah.Stubblefield@AnnArborTechnicalServices.com)  
Senior Chemist / Lab Manager **FAX Number:** 734-995-3731

**Additional Message:** Copy report to: Patterson, Keith ([keith\\_patterson@pall.com](mailto:keith_patterson@pall.com)), Brode, Jim ([jim\\_brode@pall.com](mailto:jim_brode@pall.com))  
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**Date:** 10/4/22

**Signed:** \_\_\_\_\_

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## **ORGANIC ANALYSIS**

**1,4-Dioxane by GC/MS  
USEPA 1624**

**ATS Project Number: G001-002.22**

**ATS SDG: 0926221**

**Prepared By:**

Ann Arbor Technical Services, Inc.  
290 South Wagner Road  
Ann Arbor, MI 48103



## LABORATORY OPERATIONS CASE NARRATIVE

**ATS Project Number: G001-002**

**Report Date: 9/30/22**

**SRF / SDG Number(s): 0926221**

**Client PO Number: 4505179649**

### Case Narrative Summary

This case narrative applies to the following 4 samples that were received at Ann Arbor Technical Services, Inc. (ATS) on 9/26/22, and associated matrix-specific QA/QC:

#### Samples

Client Sample Identification	Sample Date	Requested Turn Around Time	Analysis	Matrix
<i>Received 9/26/22</i>				
777S.WagnerRd.	9/23/22	Standard	1,4-Dioxane	Drinking Water
745 S. Wagner Rd.	9/23/22	Standard	1,4-Dioxane	Drinking Water
723S.WagnerRd.	9/23/22	Standard	1,4-Dioxane	Drinking Water
697 S. WagnerRd.	9/23/22	Standard	1,4-Dioxane	Drinking Water

Upon receipt samples were scheduled for the following analyses.

#### Analysis

- 1,4-Dioxane (USEPA 1624) – Standard TAT

#### Number of Samples

- 4 Samples + 1 Matrix Spike + 1 Matrix Spike Duplicate

### TECHNICAL NARRATION

#### Sample Receipt, Chain of Custody Records, and Holding Times

Samples were delivered directly to ATS by Pall Corporation staff. Samples were received with proper chain of custody records included. Sample condition and anomalies, if any, are either presented in the “Sample Receipt” section of this report or in the comments on individual data sheets. All samples were prepared and analyzed within 45 days with the following exceptions:

- None

## **Data Review and Approval**

All data contained in this report have been generated in accordance with guidelines provided in the referenced standard test method(s), and are consistent with detailed procedures described in a written standard operating procedures (SOPs) specific to the ATS Laboratory, as required by USEPA. All data are peer and management reviewed to ensure compliance with the above referenced SOP's and project specifications. In addition, all data conform to the laboratory's Quality Assurance / Quality Control Manuals.

## **Data Deliverables**

All data deliverables are generated to be in compliance with USEPA R5 EDD format and loaded directly into the ATS GeoPortal project geodatabase software. This allows for real time integration and review by project management as the chemistry data pertains to soils information, site mapping, etc. Subsequent EDD formats may be exported from the GeoPortal database based on client request. This data package constitutes a Level II package, other data report packages (Level I, Level IV DVP, EPA R5 EDD) are available upon request. There were no hardcopy data summary sheets generated for this project.

## **Data Qualifications**

The following are qualifier definitions that may be used throughout this SDG and are presented with their associated samples in each SDG section as appropriate.

- "B" – analyte concentration in method blank exceeds reporting limit (RL)
- "D" – result taken from sample dilution
- "E" – estimated result exceeding calibration range of the method
- "EMPC" – Estimated Maximum Possible Concentration due to coeluting substance causing spectral interference
- "EIR" – estimated result due to ion ration outside 30% acceptance window
- "J" – concentration reported between the project specific Reporting Limit (RL) and the laboratory determined Method Detection Limit/Limit Of Detection (MDL/LOD)
- "JMDL" – concentration reported below the laboratory/instrument Method Detection Limit/Limit Of Quantitation (MDL/LOQ), and above a specified instrument Signal-To-Noise Ratio (SNR)
- "M" – elevated reporting level due to analyte concentration or matrix interference requiring dilution, limited sample mass/volume, or excess moisture content
- "N" – tentatively identified compound based on mass spectral library search
- "NJ" – tentatively identified compound based on mass spectral data with estimated concentration
- "U" – analyte not detected above the project specific Reporting Limit (RL)
- "\*" – indicates analyte has exceeded batch or sample specific QA/QC control limits

A single QA/QC batch is defined as no more than 20 samples excluding method blanks (MB, LRB), fortified blanks (BS, LFB, LCS), matrix spikes (LFM, MS, SPK), and duplicates whether spiked or native (LFMD, MSD, SPK DUP, DUP, LR).



## **Sample Analysis**

**1,4-Dioxane Analysis (GC/MS):** Samples were analyzed by purge and trap GC/MS in accordance with USEPA method 1624 (Volatile Organic Compounds by Isotope Dilution Gas Chromatography – Mass Spectrometry). An initial calibration with at least five levels was used to quantitate 1,4-Dioxane. Samples were reported to project specific reporting limits. Samples were reported as mg/L.

*Anomalies Noted:*

- None

## **Sample Dilutions**

Samples containing compounds at concentrations above the initial calibration curve were diluted and reanalyzed for those compounds. The following samples were diluted for 1,4-Dioxane:

- None

## **Laboratory Reagent Blanks**

A laboratory reagent blank (LRB) was analyzed as part of the QA/QC batch. The LRB met the acceptance criteria with the following exceptions:

- None

## **Internal Standards and Surrogates - Quantitation**

This method utilizes Internal Standards only, not Surrogates. Internal standards areas and retention times met the acceptance criteria with the following exceptions:

- None

## **ACCURACY**

### **Laboratory Fortified Blanks (LFB/OPR) Laboratory Control Samples - Accuracy**

A laboratory fortified blank (LFB/OPR) was analyzed as part of the QA/QC batch. The LFB/OPR met the acceptance criteria with the following exceptions:

- None

### **Matrix Spikes and Matrix Spike Duplicates - Accuracy**

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed as part of the QA/QC batch. The MS/MSD's met the accuracy acceptance criteria with the following exceptions:

- None

## **PRECISION**

### **Matrix Spike and Matrix Spike Duplicates - Precision**

A matrix spike (MS) and matrix spike duplicate (MSD) was analyzed as part of the QA/QC batch. The MS/MSD's met the precision acceptance criteria with the following exceptions:

- None



/ September 30, 2022

Mark T. DeLong (Quality Assurance Coordinator)



/ September 30, 2022

Philip B. Simon (Laboratory Director)



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Tel. 734/995-0995 Fax. 734/995-3731  
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Wisconsin Laboratory ID: 998321720

# CHAIN OF CUSTODY RECORD

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PROJECT ID / NUMBER Pall / G001-002		Client Purchase Authorization (Purchase Order) PO# 4505179649		SHIPPING INFORMATION: SHIPPER (Check one) / TRACKING NUMBER(S) (If applicable)																											
SAMPLE CUSTODIAN (Print & Signature) Gage Trendel (Gage_Trendel@Pall.com)		DATE / TIME 9/26/22 12:00		RECEIVED BY (Print & Signature)		DATE / TIME 9/26/22 12:00		RELINQUISHED BY (Print & Signature)		DATE / TIME		RECEIVED BY (Print & Signature)		DATE / TIME		Tracking Number															
RELINQUISHED BY (Print & Signature)		DATE / TIME		RECEIVED BY (Print & Signature)		DATE / TIME		RELINQUISHED BY (Print & Signature)		DATE / TIME		RECEIVED BY (Print & Signature)		DATE / TIME		Tracking Number															
COMMENTS (Preservation, etc.) All samples HCl preserved. Need Results before 10/10/22.																ANALYSIS															
																MATRIX Indicate Soil/Water/Air Sediment/Sludge Extract															
LINE NO.	LABORATORY IDENTIFICATION (ATS Use Only)	DATE	TIME	COMP	GRAB	Sample Identification	NO. OF CONTAINERS	PRIORITY NUMBER	EPA 1524 1,4 Dioxane	Bromide	Chloride	Fe2 + Fe3	Barium	Ammonia N	Total Phos	TDS															
1.		9/23/2022	9:00		X	777 S. Wagner Rd.	2	3	X									Drinking Water													
2.		9/23/2000	9:08		X	745 S. Wagner Rd.	2	3	X									Drinking Water													
3.		9/23/2022	9:14		X	723 S. Wagner Rd.	2	3	X									Drinking Water													
4.		9/23/2022	9:22		X	697 S. Wagner Rd.	2	3	X									Drinking Water													
5.																															
6.																															
7.																															
8.																															
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\* - Requested Turn-Around Time Priority Number Key: 1 = Urgent 2 = Rush 3 = Standard





**1,4-Dioxane by GC/MS**  
**Data Summary Sheet**

ATS Project Number	G001-002.22	Percent Moisture	100.0
ATS SDG Number	0926221	Instrument	2100V
Client Sample ID	777 S. Wagner Rd.	Subsample (mL)	5.000
Laboratory Sample ID	0926221-1	Final Volume (mL)	5.000
Matrix	Drinking Water	Dilution Factor	1
Sample Date	09/23/2022 9:00	Basis	Wet
Analytical Method (USEPA)	USEPA 1624	Units	mg/L
Preparation Method (USEPA)	USEPA 1624	Preparation Date	09/27/2022
QC Batch Number	QCORG0927221	Analysis Date	09/27/2022 15:19:26

Parameter	CAS#	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

**Comments**

All methods reference US EPA methods unless otherwise noted.  
Calculations performed prior to rounding.  
Project specific reporting limit (MDL) based upon lowest calibration standard.



## 1,4-Dioxane by GC/MS Data Summary Sheet

ATS Project Number	G001-002.22	Percent Moisture	100.0
ATS SDG Number	0926221	Instrument	2100V
Client Sample ID	745 S. Wagner Rd.	Subsample (mL)	5.000
Laboratory Sample ID	0926221-2	Final Volume (mL)	5.000
Matrix	Drinking Water	Dilution Factor	1
Sample Date	09/23/2000 9:08	Basis	Wet
Analytical Method (USEPA)	USEPA 1624	Units	mg/L
Preparation Method (USEPA)	USEPA 1624	Preparation Date	09/27/2022
QC Batch Number	QCORG0927221	Analysis Date	09/27/2022 17:31:00

Parameter	CAS#	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

### Comments

All methods reference US EPA methods unless otherwise noted.  
Calculations performed prior to rounding.  
Project specific reporting limit (MDL) based upon lowest calibration standard.



# 1,4-Dioxane by GC/MS

## Data Summary Sheet

ATS Project Number	G001-002.22	Percent Moisture	100.0
ATS SDG Number	0926221	Instrument	2100V
Client Sample ID	723 S. Wagner Rd.	Subsample (mL)	5.000
Laboratory Sample ID	0926221-3	Final Volume (mL)	5.000
Matrix	Drinking Water	Dilution Factor	1
Sample Date	09/23/2022 9:14	Basis	Wet
Analytical Method (USEPA)	USEPA 1624	Units	mg/L
Preparation Method (USEPA)	USEPA 1624	Preparation Date	09/27/2022
QC Batch Number	QCORG0927221	Analysis Date	09/27/2022 18:14:57

Parameter	CAS#	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	0.001	0.001		

### Comments

All methods reference US EPA methods unless otherwise noted.  
Calculations performed prior to rounding.  
Project specific reporting limit (MDL) based upon lowest calibration standard.



# 1,4-Dioxane by GC/MS

## Data Summary Sheet

ATS Project Number	G001-002.22	Percent Moisture	100.0
ATS SDG Number	0926221	Instrument	2100V
Client Sample ID	697 S. Wagner Rd.	Subsample (mL)	5.000
Laboratory Sample ID	0926221-4	Final Volume (mL)	5.000
Matrix	Drinking Water	Dilution Factor	1
Sample Date	09/23/2022 9:22	Basis	Wet
Analytical Method (USEPA)	USEPA 1624	Units	mg/L
Preparation Method (USEPA)	USEPA 1624	Preparation Date	09/27/2022
QC Batch Number	QCORG0927221	Analysis Date	09/27/2022 18:58:43

Parameter	CAS#	Result	MDL	PQL	Qual
1,4-Dioxane	123-91-1	ND	0.001		U

### Comments

All methods reference US EPA methods unless otherwise noted.  
Calculations performed prior to rounding.  
Project specific reporting limit (MDL) based upon lowest calibration standard.





# ANN ARBOR TECHNICAL SERVICES, INC.

## QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

### LABORATORY BLANK SUMMARY

Method: USEPA 1624  
QA/QC Batch Number: QCORG0927221  
SDG: 0926221  
Project Number: G001-002.22  
Report Date: 9/30/2022

#### Laboratory Reagent Blank (LRB) / Method Blank (MB)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Units	Basis	Method Detection Limit	Reporting Detection Limit	Qualifier
LRB-1 9/27/22	09/27/2022	14:35:27	1,4-Dioxane	123-91-1		mg/L	Wet	0.001		

#### Comments

All methods reference US EPA methods unless otherwise noted.  
Calculations performed prior to rounding.  
Project specific reporting limit (MDL) based upon lowest calibration standard.



# ANN ARBOR TECHNICAL SERVICES, INC.

## QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

### LABORATORY ACCURACY SUMMARY

Method: USEPA 1624  
QA/QC Batch Number: QCORG0927221  
SDG 0926221  
Project Number: G001-002.22  
Report Date: 9/30/2022

#### Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) / On-Going Precision and Accuracy (OPR)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Qualifier
LFB-1 9/27/22	09/27/2022	13:51:33	1,4-Dioxane	123-91-1		0.0100	0.00909	mg/L	Wet	90.9	85	115	

#### Comments

All methods reference US EPA methods unless otherwise noted.  
Calculations performed prior to rounding.  
Project specific reporting limit (MDL) based upon lowest calibration standard.



# ANN ARBOR TECHNICAL SERVICES, INC.

## QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

### LABORATORY ACCURACY SUMMARY

Method: USEPA 1624  
QA/QC Batch Number: QCORG0927221  
SDG 0926221  
Project Number: G001-002.22  
Report Date: 9/30/2022

#### Matrix Spike (MS)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Qualifier
0926221-1 MS	09/27/2022	16:03:14	1,4-Dioxane	123-91-1		0.0100	0.00970	mg/L	Wet	97.0	80	120	

#### Comments

All methods reference US EPA methods unless otherwise noted.  
Calculations performed prior to rounding.  
Project specific reporting limit (MDL) based upon lowest calibration standard.



# ANN ARBOR TECHNICAL SERVICES, INC.

## QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

### LABORATORY ACCURACY SUMMARY

Method: USEPA 1624  
QA/QC Batch Number: QCORG0927221  
SDG 0926221  
Project Number: G001-002.22  
Report Date: 9/30/2022

#### Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Sample Concentration	Spike Added	Measured Concentration	Units	Basis	Percent Recovery	LCL	UCL	Qualifier
0926221-1 MSD	09/27/2022	16:47:10	1,4-Dioxane	123-91-1		0.0100	0.0108	mg/L	Wet	108	80	120	

#### Comments

All methods reference US EPA methods unless otherwise noted.  
Calculations performed prior to rounding.  
Project specific reporting limit (MDL) based upon lowest calibration standard.





# ANN ARBOR TECHNICAL SERVICES, INC.

## QUALITY ASSURANCE / QUALITY CONTROL SUMMARY

### LABORATORY PRECISION SUMMARY

Method: USEPA 1624  
QA/QC Batch Number: QCORG0927221  
SDG: 0926221  
Project Number: G001-002.22  
Report Date: 9/30/2022

#### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Lab Sample ID	Analysis Date	Analysis Time	Chemical Name	CAS	Result	Mean	Units	Basis	RPD	Control Limit	Qualifier
0926221-1 MS	09/27/2022	16:03:14	1,4-Dioxane	123-91-1	0.00970		mg/L	Wet			
0926221-1 MSD	09/27/2022	16:47:10	1,4-Dioxane	123-91-1	0.0108	0.0102	mg/L	Wet	10.6	20	

#### Comments

All methods reference US EPA methods unless otherwise noted.  
Calculations performed prior to rounding.  
Project specific reporting limit (MDL) based upon lowest calibration standard.